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Fact Sheet

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Defense Nuclear Agency
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Subject: DOMINIC I

DOMINIC I was a series of 36 atmospheric nuclear weapon detonations held in the Pacific Ocean area from April to November 1962. These detonations are listed on the table on the following page. They, and the continental DOMINIC II tests, were the last atmospheric nuclear weapon tests conducted by the United States.

Most of the DOMINIC I test shots were detonated in the air after having been dropped from a B-52 bomber. Twenty-four of the airdrops took place from 25 April through 11 July over the ocean just south of Christmas Island. This island is a United Kingdom possession located 1,200 nmi (2,224 km) south of Honolulu. Five more airdrops were detonated in October over the open ocean in the vicinity of Johnston Island, a United States possession 780 nmi (1,445 km) west-southwest of Honolulu. These tests were conducted for the purpose of weapon development. Five high-altitude bursts (up to 400 km) were lofted by rockets from Johnston Island and were designated the FISHBOWL events. These events were for the purpose of studying the effects of nuclear detonations as defensive weapons against ballistic missiles. In addition, the Navy conducted two nuclear tests in the open ocean, the first on 4 May about 435 nmi (806 km) east of Christmas Island and the second on 11 May 370 nmi (686 km) southwest of San Diego, California. The first, called FRIGATE BIRD, was a missile-launched airburst, a proof test of the Polaris weapon system, launched from the submarine, USS Ethan Allen (SSBN-608). The second, called SWORDFISH, was the test of the Navy ASROC system, a rocket-launched antisubmarine nuclear depth charge.

As in previous test series in the Pacific, a joint military and civilian organization conducted these tests, Joint Task Force Eight (JTF 8). JTF 8 was made up of military personnel from all the services and civilians from the Department of Defense (DOD), the Atomic Energy Commission (AEC), the U.S. Public Health Service (USPHS), and contractor organizations. Commander JTF 8 (CJTF 8) was appointed by the Joint Chiefs of Staff (JCS) and reported to the AEC as well as the JCS.

CJTF 8 was assigned overall responsibility for radiation safety. The Radsafe Branch, located organizationally in the Operations and Plans Office of Headquarters JTF 8, was responsible for overall control of monitoring and decontamination, issuing radiological safety (radsafe) supplies and equipment, maintaining radiac instruments, procuring all film badges, developing and interpreting exposed badges, and maintaining cumulative radiation exposure records for everyone who was badged. These records were compiled and are extant in a document referred to as the Consolidated List of Exposures. This branch also managed an extensive offsite radiation surveillance network on 17 remote islands throughout the Pacific Ocean. Task groups, which were subordinate to JTF 8, had command responsibility for radiological safety within their organizations.

DOMINIC I detonations, 1962

Date	Test Name	Yield[a] and Remarks
Spring-Summer 1962 -- Weapon Development Airdrops South of Christmas Island (except as noted)		
25 Apr	ADOBE	Intermediate
27 Apr	AZTEC	Intermediate
2 May	ARKANSAS	Low megaton range
4 May	QUESTA	Intermediate
6 May	FRIGATE BIRD	Polaris proof-test, airburst in Christmas Island Danger Area
8 May	YUKON	Intermediate
9 May	MESILLA	Intermediate
11 May	MUSKEGON	Intermediate
11 May	SWORDFISH	ASROC proof-test, low yield underwater burst 370 nmi (686 km) southwest of San Diego
12 May	ENCINO	Intermediate
14 May	SWANEE	Intermediate
19 May	CHETCO	Intermediate
25 May	TANANA	Low
27 May	NAMBE	Intermediate
8 Jun	ALMA	Intermediate
9 Jun	TRUCKEE	Intermediate
10 Jun	YESO	Low megaton range
12 Jun	HARLEM	Intermediate
15 Jun	RINCONADA	Intermediate
17 Jun	DULCE	Intermediate
19 Jun	PETIT	Low
22 Jun	OTOWI	Intermediate
27 Jun	BIGHORN	Megaton range
30 Jun	BLUESTONE	Low megaton range
8 Jul	STARFISH	FISHBOWL shot, 1.4 MT at 400 km over Johnston Island
10 Jul	SUNSET	Intermediate
11 Jul	PAMLICO	Low megaton range
Autumn 1962 -- Conducted in the Johnston Island Danger Area		
2 Oct	ANDROSCOGGIN	Intermediate-yield airdrop
6 Oct	BUMPING	Low-yield airdrop
18 Oct	CHAMA	Low megaton range airdrop
19 Oct	CHECKMATE	FISHBOWL shot, low-yield, tens of kilometers over Johnston Island
25 Oct	BLUEGILL	FISHBOWL shot, submegaton, tens of kilometers over Johnston Island
27 Oct	CALAMITY	Intermediate-yield airdrop
30 Oct	HOUSATONIC	Megaton range airdrop
1 Nov	KINGFISH	FISHBOWL shot, submegaton, tens of kilometers over Johnston Island
3 Nov	TIGHTROPE	FISHBOWL shot, low-yield, tens of kilometers over Johnston Island

Note:

[a]Low yield -- less than 20 KT; intermediate yeild -- 20 to 1,000 KT.

Source: Announced United States Nuclear Tests, NVO-29 (Rev. 1), Office of Public Affairs, U.S. Department of Energy, Nevada Operations Office, January 1980.

Film badges were issued to everyone who was stationed on Christmas and Johnston islands and all Navy ships directly involved with the tests. Persons on remote islands monitoring for radiation or conducting experiments were not badged. Of the over 28,000 participants in DOMINIC, over 25,000 were badged. Badges were issued for extended periods to ensure that all possible exposure was recorded.

Because all but one of the shots were airbursts, there was little or no fallout problem and no residual radiation area around the surface zero. Although SWORDFISH, the underwater shot, produced no fallout it did create a short-lived radioactive base surge and a pool of radioactive water around the detonation. The base surge dissipated in less than an hour, and the pool dissipated after a few days.

In general, film badge readings were low. Only 842 (3 percent) of the 25,399 badged participants had an exposure greater than 0.5 roentgens (R). Of these, 56 exposures were over 3.0 R: 2 Army, 4 Navy and Navy civilians, 49 Air Force, and 1 other civilian. The established JTF 8 Maximum Permissible Exposure (MPE) was 3.0 R.

The two Army men with over 3.0 R exposure served with the unit that decontaminated the aircraft involved in cloud sampling and as such were authorized an MPE of 20.0 R. All the Air Force personnel over 3.0 R were associated with cloud sampling (crew, maintenance, sample removal, or decontamination) and were also authorized an MPE of 20.0 R before the operation started. The highest total exposure recorded in this group was 17.682 R; this was also the highest for the entire operation. There were 19 other Air Force exposures over 10.0 R.

The Navy personnel recording over 3.0 R were on USS Sioux (ATF-75), which was involved in collecting samples of weapon debris from the radioactive pool of water created by the underwater SWORDFISH shot. This group was allowed an MPE of 7.0 R.

Evidence exists that many of the badges worn by personnel during DOMINIC were defectively sealed and recorded density changes due to moisture, light, and heat in addition to nuclear radiation. A 1979-1980 reevaluation of 1,349 DOMINIC I film badges showed that 45 percent exhibited some damage related to light, heat, and age due to defective wax seals. Environmental damage was observed on 98 percent of the badges, which had a developed density equivalent of over 0.4 R (gamma). These findings show, for example, that one-third of the higher USS Princeton (LPH-5) exposures should actually read zero. The lack of any known activity during DOMINIC I that would result in exposures over 3.0 R except for Sioux and the high correlation between environmental damage and high dose readings indicate most of these readings are higher than the exposure actually received. Nevertheless, all personnel have been assigned the recorded exposure reading in records maintained by the Navy.

One of the Thor rockets being launched at Johnston Island with a nuclear payload burned on the launch pad. The high explosives in the nuclear warhead detonated spreading alpha contamination around the launch complex. It took several weeks to decontaminate and rebuild the launch complex. Stringent personnel safety measures were enforced during the cleanup. No one received significant contamination from this accident.

DOMINIC I Personnel Exposures

Organization	Number Badged	Number of Exposures (R) 0	0-1	1-3	Over 3	High (R)
Army	628	306	301	19	2	3.539
(%)		49	48	3	1	
Navy	16,420	7,365	8,705	346	4	4.150
(%)		45	53	2	1	
Air Force	2,702	1,182	1,375	96	49	17.68
(%)		44	51	4	2	
Marine Corps	589	209	376	4		2.29
(%)		35	64	1		
DOD Agencies	350	140	209	1		1.37
(%)		40	60	1		
Other Government, Contractors, and Foreign	4,620	2,041	2,555	23	1	7.15
(%)		44	55	1	1	
Total	25,309	11,243	13,521	489	56	17.68
(%)		44	53	2	1	

Collective exposure was about 5,000 man-R and overall mean exposure was slightly less than 0.2 R.